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USSR Report

MILITARY AFFAIRS

(FOUO 6/82)



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STRATEGIC ROCKET FORCES

BOOK EXCERPTS: ROCKETS AND ROCKET FORCES

Moscow RAKETCHIKI in Russian 1979 (signed to press 13 Feb 79) pp 5, 134, 135, 133, 7-9, 114-123

[Annotation, table of contents, introduction, and part of Chapter 4 from book "Rocketeers", by M. G. Grigor'yev, G. N. Astapenko, I. P. Terekhov, and A. I. Yarovskiy, Izdatel'stvo DOSAAF, 100,000 copies, 135 pages plus 64 pages of illustrations]

[Text] This is a book about rockets and rocketeers. It tells about the creative searches of our scientists, designers, engineers, and workers--the creators of rocket equipment, and about its further development and improvement. The authors write about the establishment of the rocket troops and show the selfless service of the men--the masters of mighty contemporary equipment.

The book is intended for a broad range of readers.

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Introduction

Our contemporary rocket equipment--that remarkable creation of the mind and hands of talented Soviet scientists, designers, engineers, and workers--shows with all convincingness how mighty and strong is the economic, scientific-technical, and defense potential of the socialist state which was created in accordance with the brilliant plans and under the leadership of the Leninist party and how great is the creative energy of our people.

A great number of books of various types have been written about the birth and development of Soviet rocket technology, the ways and methods for its practical use, its creators, and testers--people of a true exploit--and many brilliant and impressive motion picture films, documentary and artistic, have been made. And nevertheless,

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the interest of our youth and its striving for knowledge about this most complex equipment of modern times which has such great scientific and practical significance is continuously growing.

The conquest of space began with the assistance of rockets and rocket systems. And our country began the space age.

This book also discusses rocket equipment, and more precisely, rocket weapons. It tells about combat rockets, about the difficult labor and intense creative searches of their creators, about the Soviet rocket troops and the difficult path of development and continuous strengthening which they have covered, and about the rocketeers --soldiers and military leaders who are giving all their strength and their intelligence to serving the socialist motherland.

Combat rockets, which have received an extremely broad reputation in our time, are called the weapon of the age. And this is correct. Absorbing many of the latest scientific discoveries, outstanding achievements in the development of equipment, industrial production, and military affairs, they are now the most powerful and most improved means of armed conflict which, in considerable measure, caused the very nature and special features of combat operations.

It is well known that contemporary rocket weapons are now represented in all the services of our Armed Forces and comprise one of the most important components of their high combat might. But among the combat rockets of various classes and which differ in their nature there are special-purpose rocket weapons which have been allotted an exceptionally important role in the system of ensuring the country's defensive capability and in the matter of defending the achievements of socialism against imperialist aggression. These are strategic rockets. And they have a precise name--our fatherland's shield and sword.

The Soviet people and their armed forces insert a clear and specific meaning in such a capacious concept. The rockets are intended for defeating strike against the aggressor. This book tells primarily about strategic rockets, about the Strategic Rocket Troops [SRT], and about the valiant deeds of the rocketeers who, like indefatigable sentinels, are always in combat readiness.

Heirs to the unfading combat glory and remarkable traditions of the older generations of Soviet servicemen, the strategic rocketeers are boundlessly proud of the fact that the people, who are engaged in the implementation of the grandiose plans for communist construction, entrusted powerful contemporary weapons to them. And this pride and profound consciousness of their responsibility for the cause of defending their country multiply their spiritual and moral strength and their striving to realize the historic decisions of the 25th CPSU Congress and to justify with pride the high confidence of the party and the people.

When we speak of contemporary rockets, we often also recall those pioneers who laid the foundation for these weapons. Back in the last century, military figures and engineers, among whom General A. D. Zasyadko is especially known, stepped forth as designers of combat rockets which found employment in the military operations of the Russian Army. The work which they began was continued by Generals P. P. Kovalevskiy and A. A. Shil'der. In 1827, Russian Army Captain V. M. Vnukov assumed command of a "rocket company" which was formed and consisted of 18 launcher mounts.

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Further development of combat rockets and the tactics for their employment was connected with the name of General K. I. Konstantinov. The rockets which he developed were successfully used in the course of the Crimean War of 1853-1856. However, the conditions of that time and the extremely low level of scientific development and production did not permit the creators of new weapons to obtain optimum results. Rockets, which had only just begun their combat history, were forgotten. Classical weapons--artillery--gained the upper hand.

The development of modern rocket technology is greatly obligated to the works of our brilliant countryman, K. E. Tsiolkovskiy, the founder of the scientific theory of rocket propulsion. In developing the first models of Soviet rockets Soviet scientists and designers were guided namely by his advanced ideas. They leaned on the effective support of the party and the state in their indefatigable searches and in the solution of practical problems in the creation of rockets. Scientific-design organizations which further the combination of efforts of enthusiasts for new equipment and ensuring the attainment of practical results in rocket-building were created in our country considerably earlier than in the West. Back in the 1930's we had organized such a genuinely scientific center as the Rocket Scientific-Research Institute which permitted the purposeful conduct of large-scale research and design work. It was namely within the walls of the Rocket Scientific-Research Institute and on its ranges that, by the efforts of our rocketeers, the first models of new rockets were created and tested which later found wide employment in the battles of the Great Patriotic War.

In the postwar period rocket technology took a giant step forward. It orbited our country into space and permitted a multifold strengthening of our defensive might.

In working on the book, the authors used the works of scientists and designers--creators of rocket equipment, military historians, writers, and journalists and materials from the periodical press, archive documents, and recollections of servicemen who have mastered rocket weapons. It is hoped that this book will serve the cause of military-patriotic indoctrination of our youth and the training of youths for honorable military service.

At the Launch--The Strategic Rocket Forces [Chapter 4, excerpts]

The creation of the Strategic Rocket Forces as an independent service of the Armed Forces was announced at the fourth session of the USSR Supreme Soviet in January 1960.

The separation of the Rocket Forces as an independent service of the Armed Forces meant that it was necessary to solve quickly the most difficult problems: to develop the bases for the combat employment of the troops and their control, to select areas for emplacement and construct launch positions for the rocket complexes, to create a network of educational institutions for the rocketeers, and so forth.

The composition of the Rocket Forces included newly formed units armed with strategic ballistic missiles and military educational institutions.

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The command sent the best Guards units which had combat experience and were capable of mastering new weapons to the Rocket Forces. The Guards Red Banner large unit was also among them. The combat path of this large unit began in the years of the Civil War in the Transcaucasus where its personnel distinguished themselves in the struggle with nationalistic bandits.

The large unit went into battle against the German-fascist troops in September 1941 at Poltava. The large unit was converted to a Guards large unit in the fall of 1942 for bravery displayed in battles with the enemy. After the Battle of Stalingrad a new order appeared on the large unit's Guards banner.

On 6 July 1943, the artillery batteries of the large unit engaged fascist tanks on the Kursk Bulge. Nineteen enemy tanks rushed at the gun of the chief of artillery section, Master Sergeant Vlasov, nine of which were destroyed including five "Tigers." The next day, more than 20 enemy tanks moved on the position of the artillerymen; 8 enemy tanks, of them 3 "Tigers," were transformed into heaps of metal. The fighters of the section died one after the other. Left alone at the gun, Guards Master Sergeant Vlasov knocked out one more enemy tank before he rushed with a bottle of combustible mixture against the last "Tiger" which was moving on him. Guards Master Sergeant Vlasov died a hero's death.

In the summer of 1944, the personnel of the Guards large unit ended their crusade on the banks of the Baltic Sea.

The heirs to the soldierly glory of the Guards Red Banner large unit received new, contemporary weapons, mastered them to perfection, and went on combat duty.

The officers, sergeants, and soldiers of the rocket unit which was formed on the base of the famous large unit became masters of rocketry. They won first place in the competition between rocket units, 40 percent of the rocketeers of the unit became experts of combat and political training, many of them passed the examinations for the title of first- and second-class specialist and mastered allied specialties, and half the men are rated sportsmen. The Komsomol Central Committee awarded the unit's Komsomol organization the Challenge Red Banner and Certificate of Honor.

"Let our fathers and mothers, brothers and sisters, wives and fiancées work and live in peace! We are ready to defend the interests of our motherland at any time. Let the aggressors know--formidable rockets are in reliable hands! No rocketeer will hesitate if it is necessary to punish the aggressor wherever he may be," said Guards Private First Class Dorozh when receiving the banner. Subsequently, the rocketeers of the Guards unit again won the Challenge Red Banner of the Komsomol Central Committee.

The combat path of the troop unit which began another rocket formation is also rich with soldierly exploits. Five men of this unit were awarded the title of Hero of the Soviet Union, 23 were awarded the Order of Lenin, and 220--the Order of the Red Banner. The rocketeers received the glorious traditions of the frontline fighters as a baton and are continuing them with their deeds.

Four two-time Heroes of the Soviet Union, 56 Heroes of the Soviet Union, three men who were awarded Orders of Glory of all three classes, 4 Heroes of Socialist Labor, and thousands of generals, officers, and extended-service servicemen who were awarded orders and medals of the Soviet Union for valor and bravery came to the Rocket Forces.

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During the years of the formation of the Soviet Air Forces the call resounded throughout the country: "Youth, to the airplane!"--and the people sent their sons off to aviation. Another call sounded: "Youth, to the fleet"--and troop trains with recruit seamen raced across the country. The Rocket Troops were formed without the thunder of brass bands and without calls. They joined them on the call of their hearts, and not in accordance with the call-ups of the rayon military commissariats. Servicemen enriched with combat experience went. Pathfinders went. It was clear to all of them--yesterday's officer candidates and veterans: difficult work awaited them, but work on which the peace of the people depends.

The leaders of the Communist Party and the Soviet government followed the course of the organization of the Strategic Rocket Troops with great attention. They visited the rocket units, helped the rocketeers to solve difficult problems on the spot, met with the officers and soldiers, became acquainted with their life and combat training, and listened to their suggestions on improving the equipment and raising the combat readiness of the Rocket Troops. Marshals of the Soviet Union G. K. Zhukov, R. Ya. Malinovskiy, A. A. Grechko, M. V. Zakharov, and I. Kh. Bagramyan, Chief Marshal of Artillery N. N. Voronov, and Army General A. A. Yepishev were occupied with problems in the formation of the rocket unit, the construction of rocket complexes and housing areas, and the arrangement and living conditions of the rocketeers.

Hero of the Soviet Union and Chief Marshal of Artillery M. I. Nedelin was appointed first commander of the Strategic Rocket Troops. He was an outstanding military leader who had gone through battles of the Great Patriotic War as a commander of an artillery antitank brigade of the reserve of the Supreme High Command and artillery commander of an army and then a front.

General Nedelin displayed organizational and military talent in the offensive operations of the Soviet troops to liberate from the fascists the northern portion of the Donbas, the cities of Dnepropetrovsk, Nikolayev, and Odessa, in the Yassko-Kishinev operation, in the crossing of the Danube, and in the Budapest, Belgrade, and Vienna operations. He profoundly understood the difficult art of controlling a tremendous number of artillery troops. His broad horizon and wealth of combat experience permitted him to solve the problems of reequipping the Soviet Army with new nuclear missiles which were just as difficult successfully in the postwar period. As chief of staff of the artillery of the Soviet Army, chief of the Main Artillery Directorate, commander of artillery of the Soviet Army and Deputy Soviet Minister of Defense, and then as commander of the Rocket Troops, Nedelin did much for the development and improvement of rocket weapons and the Strategic Rocket Troops. The marshal constantly visited the rocket ranges, rocket units, and design offices, studied the state of affairs concerning the development and employment of new weapons, and helped people in every way in their difficult work.

In October 1960 Marshal of the Soviet Union K. S. Moskalenko was appointed commander of the Strategic Rocket Troops. He began the Great Patriotic War as commander of the 1st Antitank Artillery Brigade on the Southwestern Front. The artillerymen commanded by Brigade Commander Moskalenko destroyed more than 200 tanks in border battles. During the war years, General K. S. Moskalenko successively commanded a rifle corps, a horse and mechanized group, a cavalry corps, and tank and combined-arms armies. For ability and bravery displayed, General Moskalenko was awarded the title of Hero of the Soviet Union and Hero of the Czechoslovak Socialist Republic, and he was decorated with many combat orders and medals.

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After conclusion of the war, K. S. Moskalenko was engaged in strengthening the Air Defense Forces and, from 1953, was commander of the Moscow Military District. In 1955 he was awarded the rank of Marshal of the Soviet Union.

From 1960 through 1962 K. S. Moskalenko was the commander of the Strategic Rocket Forces. He constantly visited the rocket garrisons and delved deeply into the organization of the training and life of the rocketeers. During one of his trips the commander set out directly from the airfield to the barracks of the post. Entering the very first premises, he was interested in where the people were. The unit commander reported that he ordered forming up the personnel on the parade ground.

"Why did you do it? A guard of honor?" the commander asked.

"No, Comrade Marshal of the Soviet Union," the unit commander replied. "I have served in the army for many years but I met and talked with a marshal for the first time. All our officers and men would also like to meet the marshal...."

Since nothing could be said against this, the commander hurried to the parade ground. He ordered the flanks of the formation to close and then had a thorough talk with the rocketeers and told them about the international and domestic situation in the country and about the missions assigned to the Strategic Rocket Troops. Then the commander inspected the launch positions and the post and was interested in the life and living conditions of the men. He dropped in at the soldiers' mess, tried the first and second courses, and thanked the cook for the tastily prepared dinner. Constant contact with the rocketeers, knowledge of their training and living conditions--this was one of the bases of his activity for the commander of the Rocket Troops.

In April 1962, Marshal of the Soviet Union S. S. Biryuzov was appointed commander of the Strategic Rocket Troops. He began the war as the commander of a rifle division and skillfully directed the combat operations of the personnel. He was wounded five times during the first year of the war, but he invariably returned to formation.

In the last period of the war, General Biryuzov, in the post of chief of staff of the 3d Ukrainian Front, participated in the liberation of the northeast part of Yugoslavia and its capital, Belgrade, from the fascist troops, and then he commanded the troops of the 37th Army. In the postwar period S. S. Biryuzov was Deputy Chairman of the Allied Control Commission for Bulgaria and chief advisor to the Bulgarian People's Army. Working in the posts of commander of the Air Defense Forces, commander of the Strategic Rocket Troops, and chief of the General Staff--First Deputy Soviet Minister of Defense, S. S. Biryuzov gave all his strength and knowledge to strengthening the combat might of the Soviet Armed Forces.

In 1955, by the Ukase of the Presidium of the USSR Supreme Soviet S. S. Biryuzov was awarded the rank of Marshal of the Soviet Union. In 1957 he was awarded the title of Hero of the Soviet Union. The commander of the Strategic Rocket Troops did much for the further development of the new service of the Armed Forces. He frequently visited the troops and the construction of the launch positions, talked thoroughly with commanders and soldiers, and delved into all questions of the preparation and organization of combat duty and the training and indoctrination of the troops' personnel.

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On 5 March 1963 one of the celebrated military leaders, twice Hero of the Soviet Union N. I. Krylov, was appointed commander of the Rocket Troops.

Nikolay Krylov voluntarily joined the Red Army in 1919 as a 16-year-old lad and, from that time, linked his life with the Soviet Armed Forces. During the years of the Civil War N. I. Krylov fought against the White Guards bands in the Northern Caucasus and in the Transcaucasus and participated in the liberation of the Far East from the interventionists.

The talent and organizing abilities of N. I. Krylov were disclosed especially brilliantly during the Great Patriotic War. He led the troops which fought heroically against the fascist hordes in the defense of Odessa and Sevastopol' and in the Battle of Stalingrad.

"I had the occasion to endure 180 fiery days and nights with Nikolay Ivanovich in Stalingrad. I will never forget the fierce battles on the narrow patch of the Volga bank. At the most critical moments of the combat situation, he always displayed exceptional self-control and composure. He was always seen where it was more dangerous, where honor gave rise to honor and glory--to glory. He was a person of great personal bravery and courage, a commander with a firm will and unlimited faith in victory. His faith was transmitted to his subordinates and they, no matter how difficult it was, stood to the death," Marshal of the Soviet Union V. I. Chuykov recalls of his chief of staff.

During the war, for courage and heroism which were displayed General Krylov was twice awarded the title of Hero of the Soviet Union and was decorated with many orders and medals.

In the postwar period, N. I. Krylov commanded the troops of a number of military districts, giving all his knowledge and experience to raising the combat readiness of the Soviet Armed Forces. In April 1962, N. I. Krylov was awarded the rank of Marshal of the Soviet Union. In 1963 he was appointed commander of the Strategic Rocket Troops. In this important post, N. I. Krylov showed himself to be an outstanding military figure. He did much to raise the combat readiness of the rocket units and for the improvement of combat duty, and he often visited the troops and ranges during missile tests.

The commander was attentive to the organization of the training and indoctrination of the troop personnel, was concerned that combat duty at the strategic rockets was performed by excellently trained soldiers, sergeants, and officers, and that the rocketeers had good training simulators and training aids, and he did much so that all conditions were created for the rocketeer soldiers for successful combat service and good rest. N. I. Krylov was known to the Soviet reader as the author of a number of books and articles on questions of the combat activity and traditions of the Soviet Armed Forces.

In April 1972 Army General V. F. Tolubko was appointed head of the Strategic Rocket Troops.

He volunteered for the ranks of the army as a 17-year old youth. In the prewar period he completed tank school and then the academy of armored and mechanized troops.

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In the period of the Great Patriotic War, he was a chief of staff and then commander of a tank brigade and chief of the operations branch of a corps headquarters. He took an active part in the battles with the German-fascist aggressors on the Lenin-grad, Kalinin, and other fronts as well as in the Yassko-Kishinev, Budapest, and Belgrade operations.

After conclusion of the war V. F. Tolubko worked in various command and staff posts and completed the General Staff Military Academy. In 1960 he was appointed first deputy commander of Rocket Troops. From 1968, he commanded the troops of the Siberian and then the Far East Military Districts. V. F. Tolubko has been a member of the CPSU since 1939. He was elected a delegate to the 21st, 22d, 23d, 24th, and 25th CPSU Congresses and a deputy of the RSFSR Supreme Soviet, 5th, 6th, and 7th convocations. In 1971, V. F. Tolubko was elected deputy of the USSR Supreme Soviet, and at the 25th Party Congress was elected a member of the CPSU Central Committee.

The CPSU Central Committee and the USSR Council of Ministers adopted measures to provide the Rocket Troops with the latest combat and training equipment and to improve the life and living conditions of the personnel. Comfortable houses, dormitories, barracks, messes, polyclinics, Officers' Houses and soldiers' clubs, coffee shops, and sports complexes were constructed for the rocketeers.

Today's rocket garrison is no longer a tent or dugout cantonment of the first rocketeer-settlers. It is a military post with personal service shops, stores, coffee shops, with gymnasiums, swimming pools, and a stadium. Mail, telegraph, automatic telephone exchanges, and a television center are very important for rocketeers who live far from big cities. Today, the posts of the rocketeers contain everything to work and rest fruitfully.

The organization of the Rocket Troops and rocket weapons was improved. The first rocket units were armed with ground-launched rocket complexes. The installation of such a rocket complex was cumbersome and required considerable manual labor, and a large combat section was needed to service it.

Silo launchers were created to increase the invulnerability of the rocket complexes and strengthen the combat readiness of the Rocket Troops. Contemporary silos have automatic control and protection which ensures the increased protection of the rockets in them even with an enemy nuclear attack.

"...Let us drop below the ground," says a rocketeer. "What strikes one between the eyes here? First of all--an absence of people. I recall the past rocket complex. It happened that at the moment of the alarm several services resembled a swarming anthill. And sweat, it happened, poured into the eyes of the rocketeers and salt came through on the service shirts. Now everything has been transformed: the sub-units were amazingly shrunken; today's specialist copes calmly with the duties of five or six past organizational units, in which regard he does not feel overloads in so doing. He is unspeakably strengthened by automatic equipment, electronics, and all types of cybernetic devices. The equipment becomes ever more wiser and fantastically capacious. It is one more impression left by an acquaintance with today's underground bastions.

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"Reduced in volume and weight, at the same time the new instruments strike one with the compactness of the parts' arrangement. We rightly were dumbfounded by the small horseshoes seated on the extremities of a flea. And here in front of us were elements of a computer the size of an ant's larva. And they were created not for adornment and not for a museum display, but for work: so as to be able to "split" a second into fractions of many thousandths when determining the time; to concentrate a colossal avalanche of information in an electronic "memory"; to finely adjust various rocket assemblies if necessary and refine its course.

"Here is a box with a silvery coating--a child can lift it without difficulty. At one time, 'at the dawn of rocket youth,' the contents of such a box occupied an entire room.

"Electronics unspeakably eased the service of the rocketeers and sharply reduced the tables of organization. Where 10 men formerly worked is now controlled by one. And that is why there is an absence of people at the launch position. Electronics has successfully implemented the order of the times: it appeared in the units and sub-units in sports uniform, with a soldierly smart appearance, and appeared not in order to pose and be wondered at, but to work!"

The rocketeers and military construction personnel did important work in the construction of the launching positions. Expeditions consisting of experienced rocketeer officers, designers, surveyors, and other specialists were appointed to select the places for the emplacement of the rocket complexes. The military rocketeers in the expeditions worked on the drilling rigs, laid roads through impassable forests and across swamps, worked in the steppes and deserts under the scorching sun and in frigid snowstorms, and prepared the base for their units.

"We lived in tents, prepared our food ourselves, cut clearings for the range poles, and dragged handbarrows with concrete. In so doing, I do not recall that anyone refused to work because of sickness although it was rather simple to become sick under such conditions. On the contrary, it was necessary to remove from the vehicles which were taking off for work people who were sick and were ashamed to show their weakness in front of their comrades." This is how an officer who worked on one of the expeditions recalls those days.

The periods for surveying work at the sites of the future rocket garrisons were extremely compressed. The expeditions worked day and night. In uninhabitable places --in the burning steppe or in a meadow jammed with dense forest; the men of the construction units soon settled down at pegs which stuck out singly where the first scouts recently disembarked from helicopters. And the reconnaissance groups even left this camp--they took off farther. And again they covered hundreds of kilometers, searching for "coins" for the construction of rocket installations.

The participants of the reconnaissance groups ended the surveying work quickly. The construction of the rocket installations was begun exactly at the planned times. A great number of Soviet institutions and industrial enterprises took part in the designing, construction, and assembly of the rocket complexes--it can be said that the entire country constructed the rocket complexes.

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The questions of putting the rocket complexes into operation were at the center of attention of the Minister of Defense and the commander of the Rocket Troops. On assignment from the CPSU Central Committee, member of the Presidium and Secretary of the CPSU Central Committee, L. I. Brezhnev, occupied himself with the problems in the construction of the rocket complexes and equipping the Soviet Army with the newest weapons. He often visited the ranges and rocket units and he was constantly interested in the course of the working out of the rocket complexes and the organization of their series production. In June 1961, L. I. Brezhnev was awarded the title of Hero of Socialist Labor for outstanding services in the development of missile technology and cosmonautics.

The strained international situation dictated the accelerated rates for the creation of the Soviet Strategic Rocket Troops and the construction of the complexes. Despite the scattering of the military construction sites on the tremendous territory of the country and the absence of experience in such complex defense construction, the rocket complexes were put into operation exactly in the established times. The commander of one of the military construction units, officer N. V. Kolbasin, tells of how work was begun at installations of the rocket troops by the military builders.

"The first echelon with people and equipment arrived at the work site on a frosty January night. They unloaded on a railroad branch line of a timber management facility, on an unimproved sector. The site for the builders had been selected in a forest. They began to erect a tent cantonment.

"The day began with digging out the equipment and materials and clearing the roads which had become buried with snow during the night. The motor vehicles moved in columns accompanied by prime movers and snow scrapers. Food was prepared for all at small mobile field kitchens. All builders underwent acclimatization in tents. Sectional-panel barracks were assembled quickly. They went out to work before breakfast and after dinner. The men of Sergeant Kudin worked better than the others.

"Gradually, life became routine: the settlement was illuminated from mobile power plants. The radio center acquired the gift of speech, connecting the unit with the world. And work proceeded more gaily. The motor vehicle company commanded by the competent and willful officer communist Tyapyshev supported round-the-clock work at the construction site. All subunits worked conscientiously.

"Spring arrived and new difficulties appeared. The roads were washed away, rivers raged around the settlement, and the high water overflowed. Construction materials and equipment were now transported by tractors. The delivery of fresh produce stopped for a while. It was necessary to change to canned goods. But the rate of work increased.

"Socialist competition which was widely initiated in the country found an ardent response among the military builders, too. Subunits competed with one another, and the unit--with the adjacent unit. It was difficult to distinguish the best subunits and brigades. The honored title of shock worker of communist labor was awarded for the first time in the unit to the machine and motor vehicle operators, Comrades Zverev, Suleymanov, Isbasarov, Mkrтчan, Kudan, Zhuk, and Shul'titskiy."

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In order to get to know their "defensive line"--the rocket complex--better, the rocketeers took an active part in its erection: in building structures, in assembly and debugging work, and they introduced many suggestions on the rational equipping of the complex.

During the time when the rocket complexes were being constructed and put into operation, commanders and political officers of units and subunits, staff officers, and all officers passed through a genuine school for organizers of production and made a deep study of the equipment. Amazing structures concealed from outside observation were constructed by the joint efforts of the builders and the rocketeers.

Here is how a veteran of the rocket troops described the contemporary rocket complex.

"...We rode out to the cantonment surrounded by a forest where the readiness signal had just sounded. But the cantonment was immersed in the night darkness and not even a small light could be seen anywhere. No voices were heard. Only the leaves of the young trees on the lanes rustled in the wind. But right here--the front position where the security of the Soviet people is guarded, the front position of their peace; the rocketeers are serving for this. And the command 'Action' just sounded here."

"The path suddenly runs down in steps. The staircase comes up against a door. We enter a room which is brightly flooded with light.

"Your pass!" the guard demands.

"We pass the control point and enter the forest. Our path, looping between trees and bushes, invariably goes farther and farther. In the forest, the silence is thicker than in the cantonment. Night birds scream from time to time.

"The path stops suddenly, and again steps downward. The turn of a lever--a heavy hatch opens, Another hatch, another. And each one is battened down tightly behind us.

"We descend on an elevator. Ahead--a light corridor. The silence was left above. Here we have deafening and powerful sounds. A dynamic loudspeaker carries the words of commands. The screens of oscillographs flicker and display boards of various colors light up. People in blue coveralls move near the control consoles and knife switches--everything is as in a fantasy film. But work is under way here. This is also the cause which they serve here.

"Here they are all young. At the remote-control console is the commander; he is not much older than his subordinates. Great experience and an excellent knowledge of his business are divined in his movements and the words of his commands. Somehow, the word "veteran" does not square with his age. But he is actually a veteran of the rocket troops and began his service at the first rocket complexes. Then--the military academy, practice on the ranges.... And it is not surprising that the men operate so calmly and clearly. Stopwatches tick off the seconds. Receiving reports, the commander reports the readiness of the rocket for launching over special communications.

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"'Conduct the launch exactly at the established time!' the command follows.

"'Yes sir!.' Each one looks once again at the instruments.. Yes, everything is ready, nothing has been overlooked, and the equipment is operating in a common rhythm with the people....

"The seconds race along. Now there, above, the mounds overgrown with brush trembled and crawled to the sides. In the place where yellowed leaves had just whispered the orifice of the silo shaft opened.

"The rocket stands deep in the shaft. It looks at the sky. But it only appears to do this. The rocket's "electronic brain remembers" the target coordinates....

"Here it is, a contemporary weapon, our reliable shield and punishing sword! How much indestructible power and strict beauty is in it! How many strained days and nights did scientists and engineers labor over the implementation of its plans, how many workers' hands cast, turned, and polished each part in it, how much strength did thousands of people give to it! One can say much about rockets, but only here, looking at how they are aimed at the sky, do you understand forever the meaning of the short and sharp word--rocket.

"We did not hear the increasing roar of the powerful engines.

"The mission was accomplished. The moon is rising above the forest. And nothing recalls that there, beneath the ground, rocketeers are working and indefatigably stand guard over the motherland."

After the completion of construction and putting the rocket complexes into operation, the main content of the rocketeers' service became training, the mastery of new weapons, and their maintenance in constant combat readiness. In this connection, the urgent necessity arose to create a contemporary training base and training and drilling equipment. The special features of the training process had to be considered. First, the rocket is a flight vehicle which is employed once; its launching with a training or combat target can be conducted only once. Second, drills prior to launching such as, for example, are conducted by riflemen, artillerymen, or tankers on the rifle range, artillery range, or tank driving grounds cannot be conducted at a combat rocket complex. At the same time, it is not sufficient for the rocketeer to study the equipment of the complex. In order to perform his duties successfully, each member of a combat section must drill systematically in order to make his actions automatic during the preparation and launching of the rocket.

Now each rocket unit has classrooms and laboratories which are equipped for the training and drilling of personnel in all rocket specialties. Using models and training aids, they can understand the most complex circuits of varied equipment.

At first, special design offices were created in the rocket units on the voluntary service principle which usually had their own designers, training-production shops, and a material and technical support group. Knowledgeable and technically trained officers, sergeants, and soldiers comprised the membership of their own design office. They began their activity with the study of rocket weapons. For this purpose, they travelled to scientific research institutions and design offices at the

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enterprises where they became acquainted with the construction of the missiles, instruments, assemblies, and systems; then they prepared textbooks and methodological aids for the rocketeers and introduced suggestions for the creation and improvement of the training and drilling equipment. In the training-production shops the specialists transformed the schemes of the designers into models and aids. Materials, instruments, and parts for the construction of the models were delivered by the material and technical support group.

The public design offices became a school of technical creativity for many rocketeers and played a large role in the creation and improvement of the training base.

Later, in the 1960's, classrooms were set up in the rocket units and simulators were created which permit the employment of contemporary methods of programmed instruction.

Training buildings were converted into unique "electronic ranges." Individual and group simulators were placed in them which do not differ from combat control consoles and assemblies not only in appearance, but also in operating conditions. On them, the rocketeers began to acquire the necessary practice for work with live rockets.

It is difficult for a person who has visited the rocketeers to believe that he is in the training classroom of a rocket unit rather than in the training laboratory of a technical higher educational institution.

Meanwhile, the rocketeers study not only in the classrooms and on the simulators. Lessons and exercises and practical rocket launchings are conducted under extremely difficult conditions.

Initially, training positions were set up in the rocket units for training purposes. Now training rocket complexes exist which are virtually indistinguishable from combat ones.

The skill of the rocketeer is checked many times before he goes on a responsible watch--combat duty. But for him, the main examination for maturity is participation in a rocket launching.

The crews travel out to a rocket range where their ability is comprehensively tested. The high quality of the live rocket launchings as an indicator of the combat readiness of the rocket troops was reported to the 22d CPSU Congress in October 1961: "In the Rocket Troops practical live rocket launchings provided convincing results: of all medium range rocket launchings more than 90 percent were accomplished with a grade of 'excellent' and 'good.' And as regards intercontinental rockets, they accomplish all their missions only with grades of 'excellent' and 'good'," said the Soviet Minister of Defense.

"An excellent rocket launching. It is not only military skill. It is a combat spirit, ideological tempering and patriotism of the hearts which have been fused together. Even a robot is able to push a button. But we are not robots, we are Soviet soldiers, the entire planet has been entrusted to us," said the commander of one of the rocket units at a meeting devoted to the return of the rocketeers from the range.

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Here is how one of the officers describes a check of the rocketeers' skill on the range.

"...It was difficult. And it was not a matter of the blizzard which broke out inopportunistically. And not the strictness of the check of knowledge--we were accustomed to this. Prior to the launch itself two instruments suddenly proved to be defective. 'Maybe everything has been intentionally readjusted,' Major Prokhorov, commander of the subunit being checked, thought with alarm. 'Let them show what they can do, they say.'

"Only later did Prokhorov learn that the malfunctions had in fact been inserted in the plan for the check.

"The rocket rose gigantically in the silo. The people operated quickly. Quickly, but calmly and not blindly.

"'I found it!' shouted Private Vasiliy Poznetsov. Almost simultaneously Major Prokhorov also found another 'failure.' A record short time was spent on its correction. The qualifications of Kuliyeu, who helped the commander, were also felt here.

"'Sorcerer,' uttered the general who followed the preparations of the rocket for launching, in a rather muffled manner without concealing satisfaction. He glanced at his watch: everything proceeded according to the standard.

"Ending the control check, Major Prokhorov glanced at his watch and pressed the button with the white letters 'Launch.' A white flame accompanied by a terrible roar burst from the nozzles. The flame expanded, becoming crimson. It already approached a giant hurricane. The commander had a great desire to look out of the reinforced concrete bunker now and to feast his eyes on the fiery trail created by human hands which was cutting the sky, but he could not...."

The excellent ability of each member of a rocket crew still does not convert the subunit into a single, smooth organism capable of accomplishing a combat mission exactly at the designated time.

The smoothness of actions of rocket subunits is worked out on combined special tactical lessons and tactical exercises.

Exercises often showed the high skill and smoothness in the actions of the rocketeers when accomplishing missions.

The constant good working order of all the complex mechanisms of the strategic rockets is maintained by technical checks of the rocket complex with the placement of the strategic rockets on combat duty as well as by the conduct of prescribed maintenance.

To ensure the constant readiness of strategic rockets, a system for their maintenance was worked out. Its basis was formed with the creation of the ballistic rockets and it developed during the construction and assembly of strategic rocket complexes.

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Improvement of the rocket-weapon maintenance system proceeded along the line of reducing the number of people servicing the rocket. The main thing in maintenance today is the prescribed system for the technical servicing of the strategic rockets. Such a system ensures the long-term faultless operation of all assemblies of the rocket complex under any conditions.

"We now have the best machines in the inventory.... It is clear that the construction of such apparatuses is complex and their systems require periodic thorough checking. Only the attentive and qualified servicing of the rockets and technical launch systems can ensure a high degree of combat readiness and reliability for a long time which are required of the contemporary rocket complex. Such periodic servicing of the combat equipment is conducted during periodic technical servicing.

"Periodic technical servicing is now considered as the final and general preparation of all rocket armament for its combat duty. In other words, combat readiness is forged on periodic technical servicing. Therefore, the great significance which its conduct on a high engineering and technical level as well as organizational level acquires is clear." This is how one of the military leaders evaluates the significance of prescribed maintenance work.

"The concept of 'combat readiness' is not new," wrote Marshal of the Soviet Union N. I. Krylov. "It was born, perhaps, together with armed conflict itself. But at each stage of development of military affairs the concept of 'readiness for battle' changed substantially, and was supplemented, defining the necessary complex of preparations to rebuff possible attack."

For the Strategic Rocket Troops readiness for battle is a concept which is absolutely new in its content.

First, our readiness for battle is the readiness of all rocket units to accomplish their assigned missions on order of the Supreme High Command under any conditions and circumstances. The unprecedented power of nuclear weapons and the virtually unlimited range for destroying targets expand the boundaries of the sphere of combat influence on the enemy on any continents. Therefore, if we speak of the readiness of our service of the Armed Forces for battle, it is the readiness to repel aggression with the employment of the most powerful means of destruction.

Second, the readiness of the rocket troops for combat operations today can be called absolute with complete justification.

The combat readiness of the rocket troops finds expression in combat duty. In the Armed Forces today there is no service more important and responsible than the performance of combat duty by the strategic rocketeers. Each of them is ready at any second to accomplish his duties upon receipt of the order. And not one of them can take over on combat duty without having demonstrated firm knowledge and skillful actions on lessons and without having studied the order for operations with the rocket and the physical essence of the processes which occur in the rocket when accomplishing any operation.

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For all rocketeers, going on combat duty is an event of tremendous importance. Crews which know the weapons entrusted to them to perfection are permitted to go on combat duty.

Permission to perform combat duty at the rockets--this is the passing of the state examination by the personnel and the peak of the rocketeers' labor in mastering the weapon.

The day of going on combat duty is a festive day for the rocketeers. When going on combat duty, a solemn ceremony is performed.

The men stand in a clear formation. The unit's sacred object--its Battle Standard--burns with red calico. Moire ribbons hang down along the staff. The fighting men of the older generation fought against the hated enemy beneath this Standard which was scorched on the battlefields of the Great Patriotic War. The motherland evaluated their soldierly exploit highly. Years passed. Now serving under this Standard are those whom the fatherland has entrusted with protecting the peaceful labor of the Soviet people--the rocketeers.

At these moments you look at the concentrated faces of the rocketeers who have received from the hands of their older brothers and fathers the combat baton of exploits and who heard the combat orders for the attack under this Standard, and you experience a feeling of the greatest pride and joy for the tremendous confidence rendered in each of us.

There is nothing comparable with the solemn elation in the ceremony of the rocketeers who are taking over on combat duty. Before beginning the accomplishment of a combat mission, they hear the order. Its embossed words sound like the mandate of the motherland:

"We take over on combat duty to ensure the security of our motherland--the Union of Soviet Socialist Republics."

From this moment, occupying their work sites at the consoles, the rocketeers will accomplish the duties defined for them day and night. The will, thoughts, and actions of each of them will be directed to seeing that at any instant the combat equipment on his sector as well as with the comrade who is sitting alongside and in the entire subunit is in a high state of readiness. Only people who are boundlessly devoted to the socialist motherland, are ideologically steadfast, and morally and physically tempered are capable of being in such a state of self-collection. And our soldiers, sergeants, and officers are just this type.

The special responsibility of the rocketeers to the people follows from the very purpose of the rocket troops which have been placed on the front line of the fatherland's defense. High combat readiness is the law of life for them. All their strained service is subordinate to this. A thirst for knowledge, creativity and initiative, the striving to accomplish the assigned mission irreproachably--this is what characterizes the rocketeers.

...Massive steel doors swung open noiselessly and, passing us through, were closed just as silently. The sounds of the land were left behind. A soft dull light is

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emitted by ceiling fixtures. A labyrinth of passages--zigzags, turns. A new door. A small room is before us. Ahead we see a control console: a figured table, stands with signaling and control. A rocketeer rises and reports: everything is in order!

Everything is in order.

He does not take his eyes from the signal stands. Here a dull-white display board lit up in the center. Numbers flash brilliantly one after another. It is an order which passed through to the rocket. A short time passes and the rocket is ready for launch. And after another short time green display boards flash alongside white readiness display boards--launch! This means that at a certain distance from here a massive lid is moving away on the surface of the Earth, and a rocket soars upward from the silo launcher and lays on a combat course....

It is going to the target. And then they report over the loudspeaker communications:

"Rocket launch accomplished!"

And this is how it will be if the aggressor tries to attack our motherland.

The Soviet strategic rocketeers are standing on combat duty so that quiet dawns arise above the fields, so that children can build whimsical castles of sand, and so that moist stars look into the night windows of the houses.

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CIVIL DEFENSE

BOOK EXCERPTS: TEXT ON CIVIL DEFENSE MEDICAL SERVICES

Moscow UCHEBNOYE POSOBIYE PO MEDITSINSKOY SLUZHBE GRAZHDANSKOY OBORONY in Russian 1981 (signed to press 6 Jul 81) pp 2-4, 134-135

[Annotation, table of contents and foreword from book "Text on Civil Defense Medical Services", by group of authors, edited by P. N. Safronov, 2d ed., revised and supplemented, admitted by Main Administration of Educational Institutions of USSR Ministry of Health for all faculties as a text for students of medical institutes, Izdatel'stvo "Meditsina", 100,000 copies, 136 pages]

[Excerpts] The second edition of the "Uchebnoye posobiye po meditsinskoj sluzhbe grazhdanskoy oborony" (the first edition came out in 1973) examines the arrangement of medical support of the population in various stricken areas, and it covers the work of the Civil Defense Medical Service in providing for medical sorting and a two-stage system for treating the stricken and ill with their further evacuation to their destination.

It sets forth the organizational structure and tasks of the primary mobile formations of the Civil Defense Medical Service (MSGO)--first aid detachments.

The text is written in conformity with the program approved by the USSR Ministry of Health and is intended for students of medical institutes.

The text has two figures, two tables and eighteen diagrams.

The reviewer was Candidate of Medical Sciences V. I. Latyshev, instructor of the Civil Defense course of the 2d MMI [Moscow Medical Institute] imeni N. I. Pirogov.

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Foreword

The Communist Party and Soviet government constantly devote great attention to strengthening our Motherland's defenses and improving civil defense.

USSR Civil Defense is a component of the system of statewide defense measures carried out in peace and wartime for protection of the population and the national economy against enemy mass destruction weapons and other means of attack, and for conducting rescue and urgent emergency restoration work in stricken areas and in areas of natural disasters.

The primary task in training students of medical institutes in civil defense is their preparation for practical work as part of mobile formations, therapeutic-prophylactic establishments and services of MSGO.

As before, the second, revised and supplemented edition of the "Uchebnoye posobiye po meditsinskoy sluzbe grazhdanskoy oborony" devotes main attention to a presentation of the organization of medical support to the population under conditions of enemy use of mass destruction weapons.

The text presents the directions in the work of the Civil Defense Medical Service, the essence of the two-stage system of therapeutic-evacuation support to the stricken and ill, questions of sorting, and kinds and scope of medical assistance in evacuation stages.

The text takes account of new statutes on organization of the Civil Defense Medical Service.

The text was written in conformity with the program for civil defense training of students of higher educational institutions approved by the USSR Minister of Higher and Secondary Specialized Education and the Chief of USSR Civil Defense and Deputy Minister of Defense of USSR. It reflects matters of civil defense training of students of medical institutes.

The program general course is not covered in this text since it is set forth in appropriate civil defense textbooks.

Participating in the writing of the second edition of the text on MSGO were instructors of the military chair of the 1st Leningrad Order of Labor Red Banner Medical Institute imeni Academician I. P. Pavlov.

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